

## Remotely Controlled Mixers for LMM Colloid Samples, Phase I

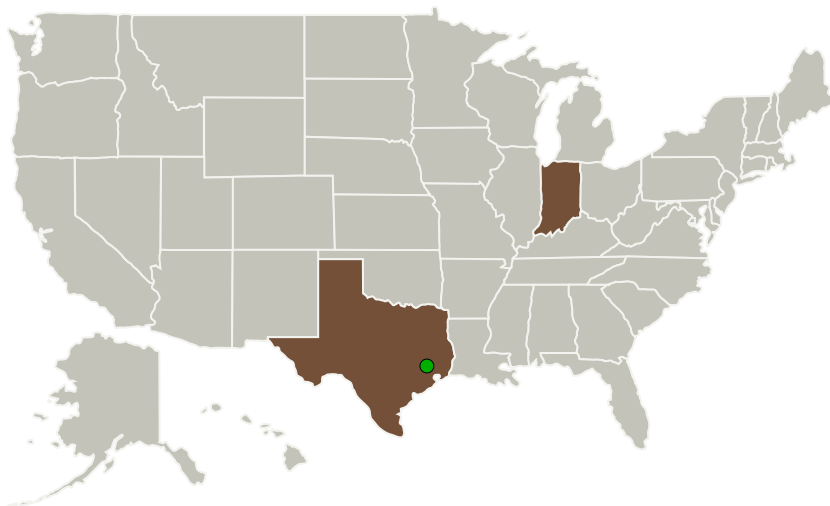
Completed Technology Project (2012 - 2012)



## Project Introduction

Designation of the International Space Station (ISS) as a National Laboratory creates exciting opportunities for a broad spectrum of researchers to take advantage of ISS's unique space attributes and scientific research facilities. The Light Microscopy Module (LMM), which was developed and is being managed by the NASA Glen Research Center (GRC), is currently operating on the ISS and has supported many high profile research experiments. LMM could yield many more astonishing results if auxiliary subsystems were available to complement its capabilities. For example, Techshot is currently developing the LMM-Dynamic Stage (LMM-DS), which will satisfy a host of new experiments proposed for LMM. However, GRC has many more researchers awaiting the essential auxiliary subsystems to efficiently conduct colloid science experiments in the LMM, which could lead to new advanced materials with exciting commercial potential. Capitalizing on Techshot's rapid progress with the LMM-DS, as well as the company's vast array of separations technologies and extensive experience with microfluidic systems, a series of Colloid Homogenization Modules (CHM) will be developed by Techshot for use in the LMM-DS. These innovative low-volume mixing devices will enable uniform particle density and remotely controlled repetition of LMM colloid experiments. In addition CHM will minimize crew time, as well as avert the need for multiple, costly colloid samples that are expended after only one examination. The CHM subsystems are an extremely important analytical microgravity research technology that will greatly enhance the capability of the LMM, thereby enabling ISS to become even more effective as a national laboratory.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Techshot, Inc.	Lead Organization	Industry	Greenville, Indiana
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

## Primary U.S. Work Locations

Indiana	Texas
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## Project Transitions

**February 2012:** Project Start**August 2012:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/140266>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Techshot, Inc.

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Michael Kurk

**Co-Investigator:**

Michael Kurk

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### Technology Maturity (TRL)

Start: 3  
Current: 5  
Estimated End: 5



### Technology Areas

#### Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - └ TX06.4.2 Fire: Detection, Suppression, and Recovery

### Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System